

WHAT IS CLAIMED IS:

(1) A circuit comprising:

a first electrically conductive member having a first and a second surface and a first aperture;

5 a first dielectric member which is coupled to said first surface;

a second dielectric member which is coupled to said second surface;

a first circuit assembly having a second electrically
10 conductive member which is coupled to said first dielectric member, said first circuit assembly further including a third electrically conductive member and a first core member which is contained between said second and said third electrically conductive members and which includes at
15 least one air-bridge; and

a second circuit assembly having a fourth electrically
conductive member which is coupled to said second dielectric member, said second circuit assembly further including a fifth electrically conductive member and a
20 second core member which is contained between said fourth and said fifth electrically conductive members and which includes at least one air-bridge, said first electrically conductive member cooperating with said first and second circuit assemblies and with said first and second

dielectric members to form a multi-layer circuit board having a second aperture which extends through said multi-layer circuit board and which is aligned with said first aperture; and

5 electrically conductive material resident within said second aperture.

(2) The electronic circuit board of claim 1 further comprising material which supports said at least one air-bridge of said first circuit assembly.

10 (3) The electronic circuit board of claim 1 wherein said first and second core members comprise aluminum and wherein said first electrically conductive member comprises copper.

(4) The electronic circuit board of claim 1 further comprising a third aperture having a first interior surface
15 which extends through said first, second, third, fourth, and fifth electrically conductive members, said first and second dielectric members, and said first and second core members.

(5) The electronic circuit board of claim 1 wherein said
20 third aperture includes a second interior surface and wherein said second interior surface is electrically isolated from said first electrically conductive member.

(6) The electronic circuit board of claim 5 wherein said first electrically conductive member is coupled to electrical ground.

(7) The electronic circuit board of claim 5 wherein said
5 electrically conductive material is isolated from said first electrically conductive member.

(8) A method for making a circuit board assembly comprising the steps of:

providing a first member having an aperture;

10 providing a second and third members having respective electrically conductive portions;

coupling said second and third members to said first member;

extending said aperture through said second and third
15 members;

forming an air-bridge within said second member; and

placing electrically conductive material within said aperture.

(9) The method of claim 8 wherein said aperture includes
20 an interior surface which is isolated from electrical ground potential.

(10) The method of claim 8 wherein a material is placed under said formed air-bridge.

(11) A method for making a circuit board assembly comprising the steps of:

providing a first member having a first core portion which is contained between a top and a bottom layer;

5 providing a second member having a second core portion which is contained between a top and a bottom layer;

providing first layer and a second layer of a first material;

providing a third member;

10 removing a portion of said top and said bottom layer of said first member, thereby exposing at least two portions of said first core portion of said first member;

removing a portion of said top and said bottom layer of said second member, thereby exposing at least two
15 portions of said second core portion of said second member;

creating a first pre-circuit assembly by attaching the first layer of said first material to a first surface of said third member, attaching the second layer of said first material to a second surface of said third member,
20 attaching said first member to said first layer of said first material, and attaching said second member to said second layer of said first material;

creating a first aperture through said first pre-circuit assembly, thereby causing a portion of said first

pre-circuit assembly to be contained within said created aperture;

selectively removing portions of said first and second core portions, thereby creating at least one air-bridge;

5 and

placing a certain electrically conductive material within said aperture and causing said certain electrically conductive material to be isolated from said at least one electrically conductive member, thereby forming a circuit
10 board assembly.

(12) The method of claim 11 wherein said third member comprises an electrical ground plane and wherein said electrically conductive material of said third pre-circuit assembly is electrically isolated from said third member.

15 (13) The method of claim 11 wherein said first material comprises a dielectric adhesive material.

(14) The method of claim 11 wherein said first core portion of said first member comprises aluminum and wherein said top and bottom layers of said first member each comprise
20 copper.

(15) The method of claim 11 further comprising the step of creating said first aperture within a certain portion of said third member; and extending said first aperture through said first pre-circuit assembly.

(16) The method of claim 11 wherein said step of selectively removing portions of said first and second core portions comprises selectively etching said first and second core portions.

5 (17) The method of claim 12 further comprising the steps of creating a second aperture through said first pre-circuit assembly, thereby exposing a second surface of said first pre-circuit assembly within said second aperture; and connecting said second surface of said first pre-circuit
10 assembly to said third member.

(18) The method of claim 17 further comprising the step of placing an electrically conductive material within said second aperture.

(19) The method of claim 11 further comprising the steps
15 of:

forming a second pre-circuit assembly by providing a fourth member comprising a fourth core portion having a top and a bottom surface which each contain electrically conductive material;

20 coupling a circuit board to said electrically conductive material residing on said bottom surface; and

attaching said electrically conductive material resident upon said top surface to said first pre-circuit assembly.

(20) The method of claim 11 further comprising the steps of:

forming a second pre-circuit assembly by providing a first member having a first core portion which is contained
5 between first and second layers of electrically conductive material;

providing a dielectric adhesive material;

coupling said dielectric adhesive material to said second layer of electrically conductive material;

10 providing a second member having a flexible core portion upon which a portion of said electrically conductive material is disposed;

coupling said electrically conductive material which is disposed upon said flexible core member to said
15 dielectric adhesive material, thereby forming a second pre-circuit assembly; and

coupling said second pre-circuit assembly to said first pre-circuit assembly.